DRBC Monitoring Programs - 2012

Toxics Advisory Committee Meeting
May 7, 2012

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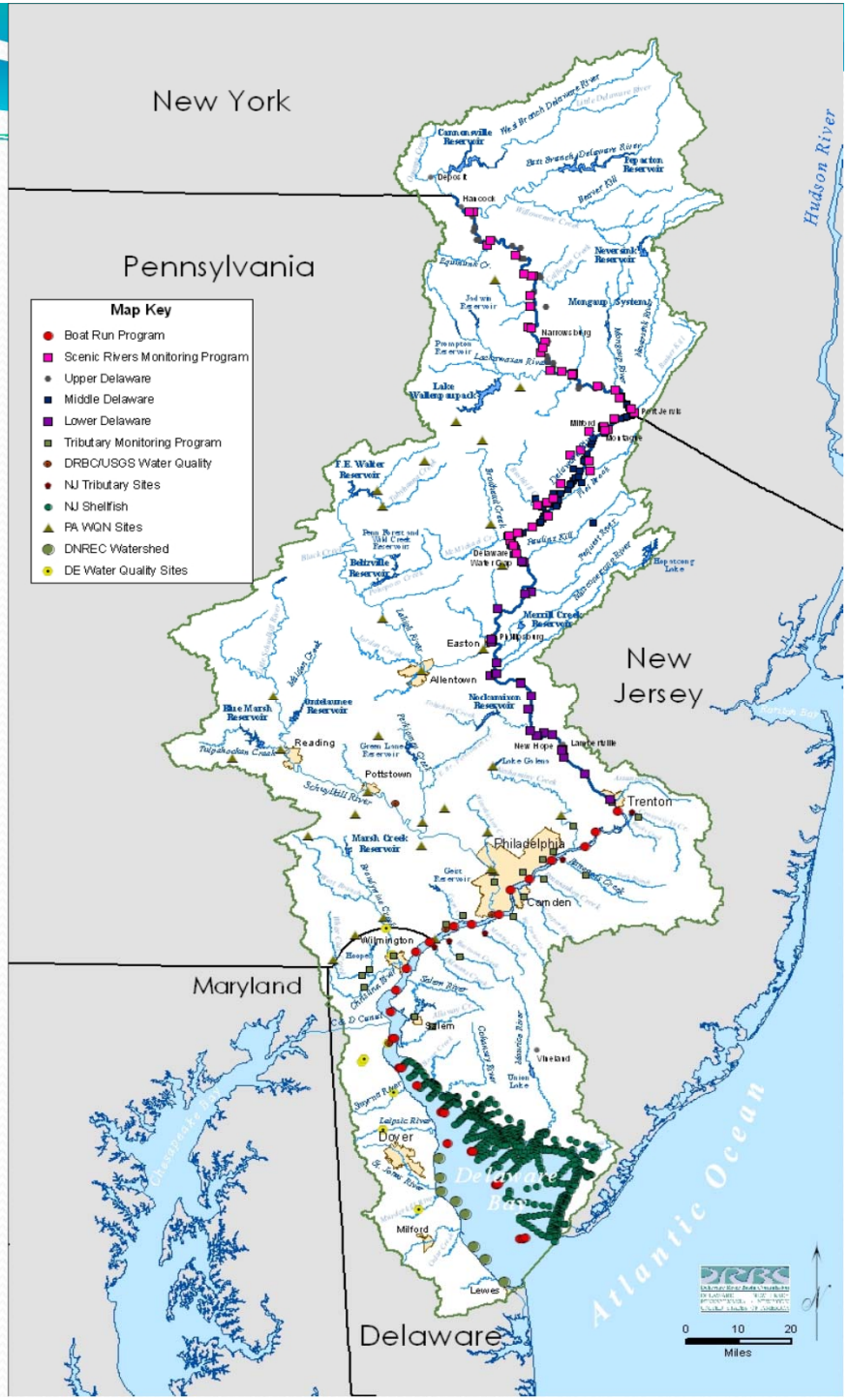
Monitoring Objectives

- Monitoring is conducted to achieve two main objectives:
  - ✓ To support management programs of the Commission including:
    - Compliance with water quality standards,
    - Compliance with Existing Water Quality (EWQ) in Special Protection Waters,
    - To develop TMDLs and assimilative capacity determinations,
    - To establish and calibrate water quality models, and
    - To track the salt front for reservoir operations.
  - ✓ To evaluate emerging threats to the water resources of the Basin.
- Monitoring is focused on the mainstem.

DRBC Monitoring Programs

1. Estuary Boat Run Program
2. Special Studies
   - Fish Tissue Monitoring
   - Zone 5 Metals Study
   - SPW Waters Metals Study
   - Whole Effluent Toxicity
   - TMDL Monitoring Programs
     - PCBs
     - VOCs
   - Emerging Contaminants
5. USGS Flow and WQ Gages supported by DRBC



Monitoring for Management

- Initially focused on water quality-limited areas in the Delaware Estuary.
- Boat Run Survey
  - ✓ Initiated in 1968 as part of efforts to address low dissolved oxygen levels. Address a wide-range of conventional and toxic pollutants.
- Special Protection Waters
  - ✓ Initially focused on Upper and Middle Delaware portions in cooperation with NPS in 1990s.
  - ✓ Extended to Lower Delaware in 2000s.
  - ✓ 2012 - Assessment Year

Boat Run Monitoring Program

Where:

- Delaware Estuary (mainstem);

Parameter Groups:

- Nutrients, DO and other conventionals, solids, metals, VOCs, bacteria, and chlorophyll a

How Often:

- 22 sites, currently 8 times per year, ongoing

Purpose:

- Assessment of compliance with water quality criteria.
- Special studies for dockets

Special Monitoring Programs

Where:

- Tidal and non-tidal portions of Delaware River: ambient water, fish tissue, macroinvertebrate and algal communities.

Parameter Groups:

- PCBs, Dioxin/Furans, PBDEs, PFCs, Chronic toxicity, nutrients.

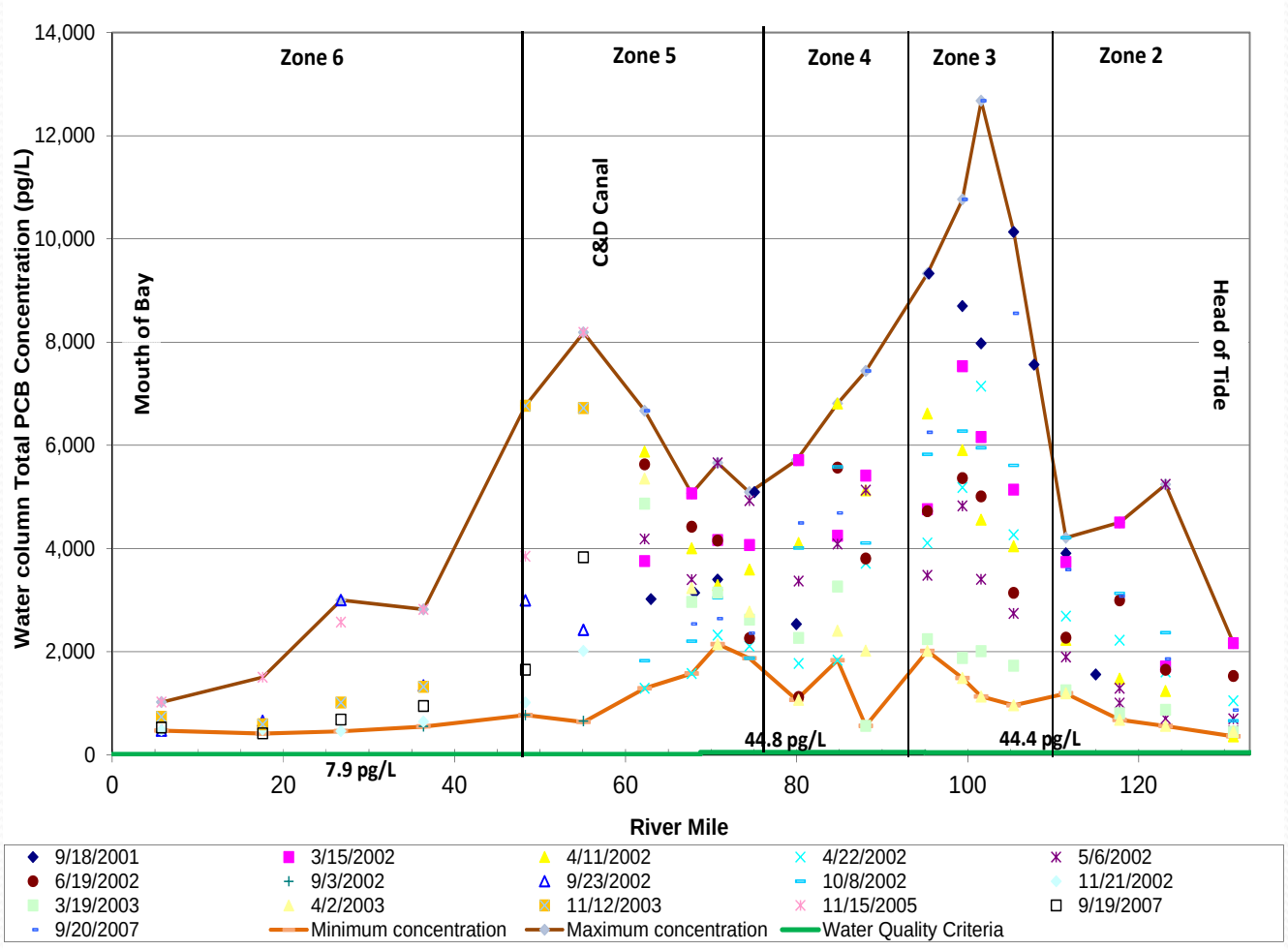
How Often:

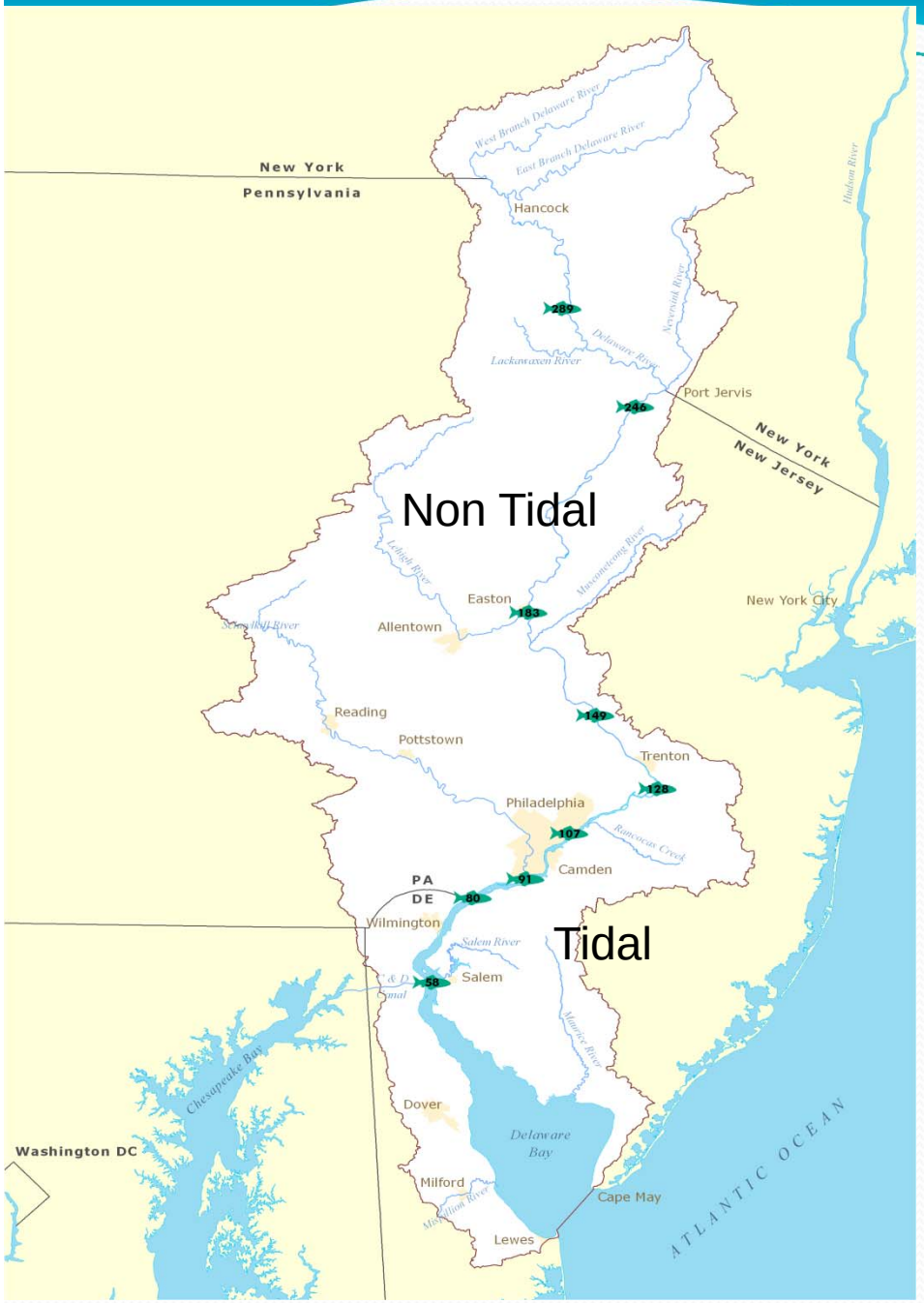
- Special Study

Purpose:

- TMDL development
- Model development and calibration
- Spatial and temporal variability of selected contaminants

Ambient Water Sampling for PCBs Delaware Estuary (2001 – 2007)





Fish Sampling Locations

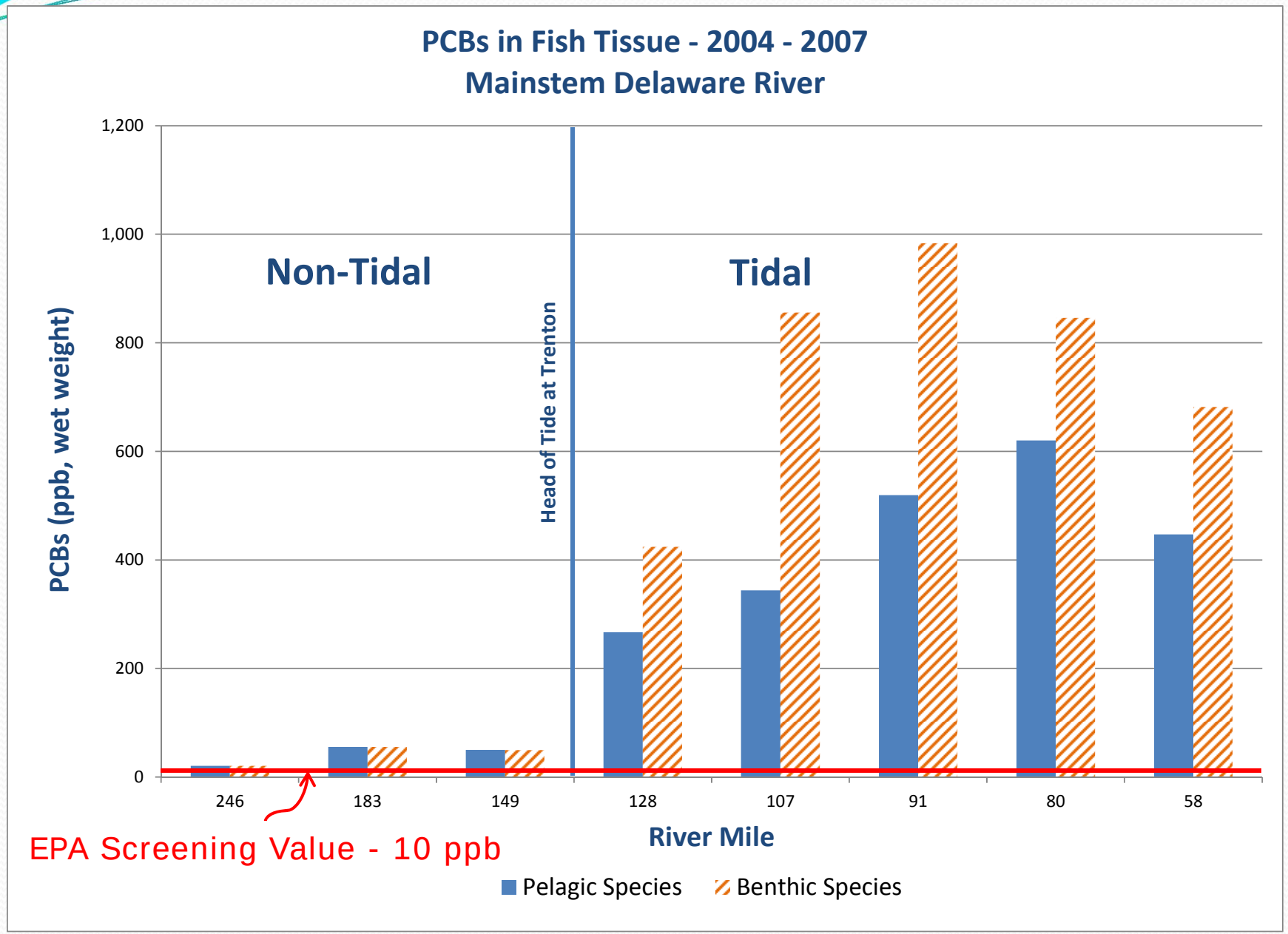
Non-Tidal Locations

Narrowsburg, NY	RM 289
Milford, PA	RM 246
Easton, PA	RM 183
Lambertville, NJ	RM 149

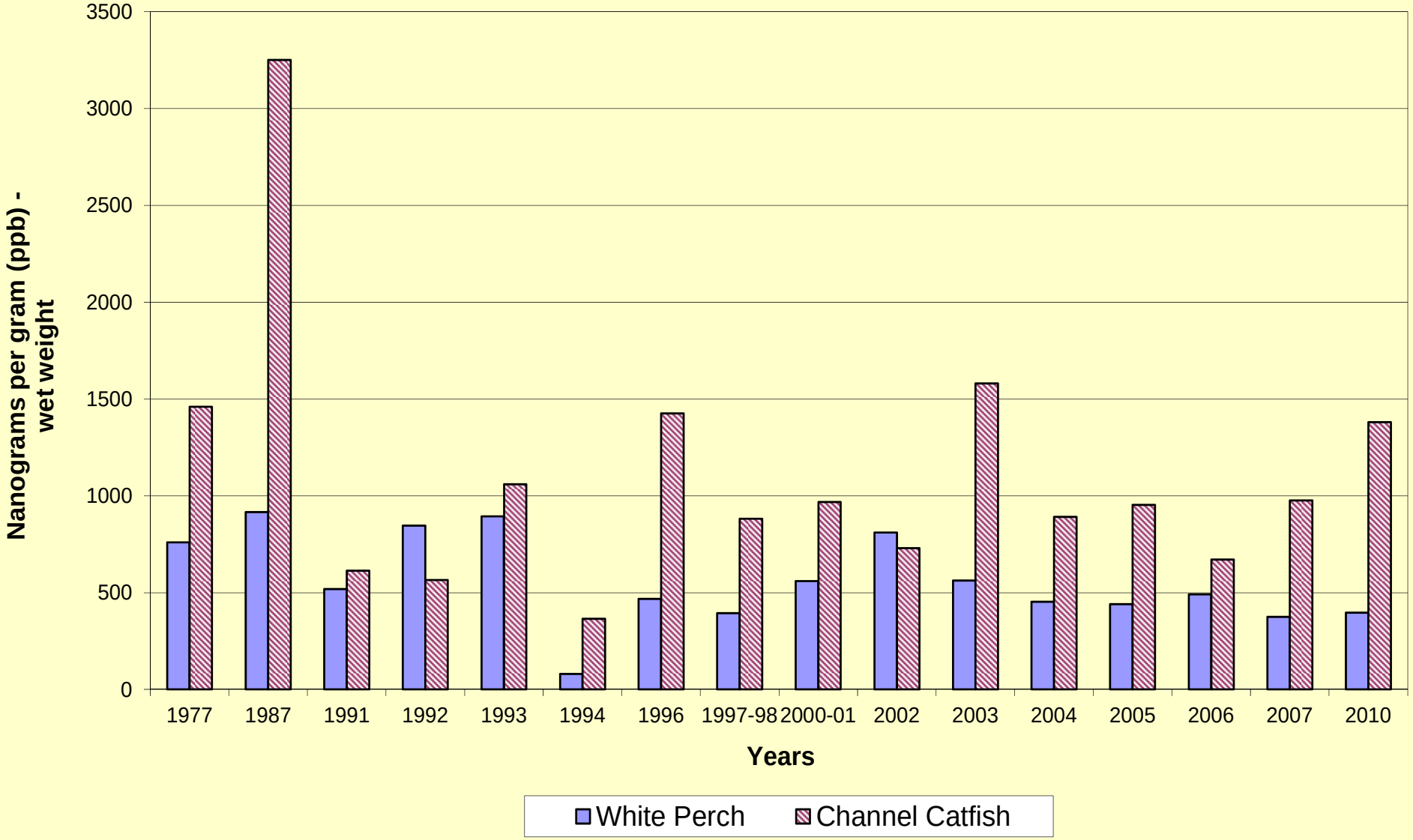
Tidal Locations

Crosswicks Creek	RM 128
Tacony-Palymra Br.	RM 107
Woodbury Creek	RM 91
Raccoon Creek	RM 80
Salem River	RM 58

Fish Tissue Data



Historical Trend in PCBs in Fish Tissue
Delaware Estuary



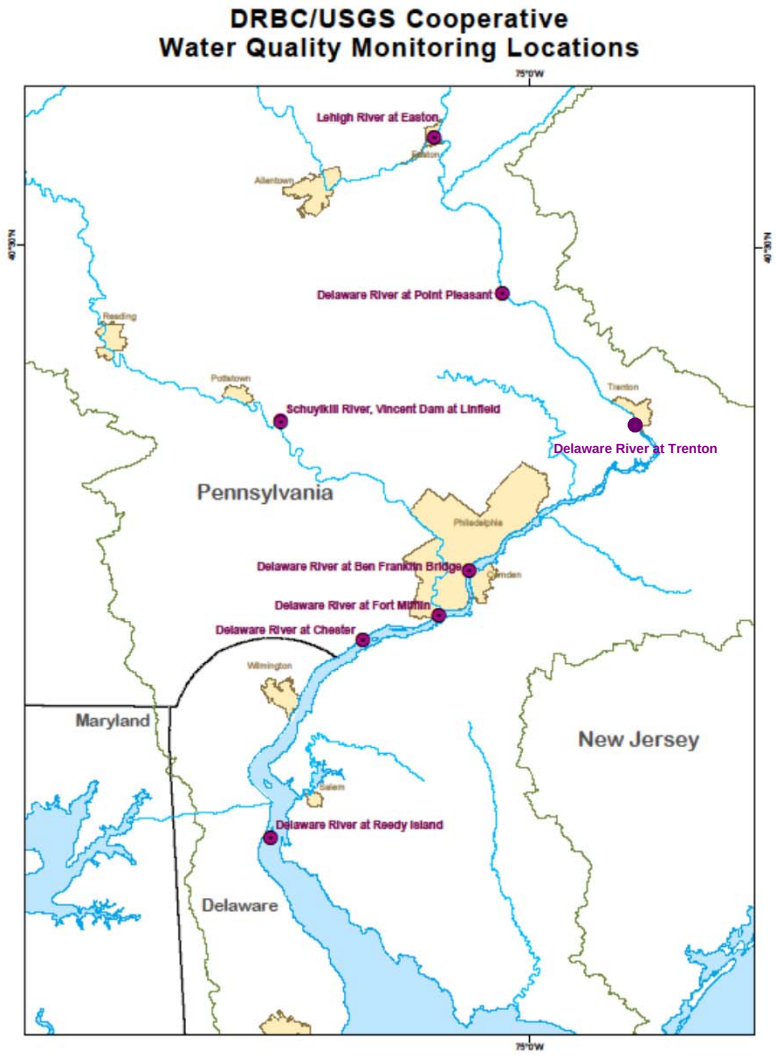
Zone 5 Copper Study

Sampling Locations

Station Description *	River Mile
Marcus Hook	79.5
Marcus Hook Intermediate	76.4
Oldmans Point	75.2
Oldmans Point Intermediate	73.5
Cherry Island	71.5
Cherry Island Intermediate	69.4
New Castle	67.7
New Castle Intermediate	62.9
Pea Patch	60.5
Pea Patch Intermediate	57.5
Reedy Island	54.7

* Samples were collected as grabs at the surface and near bottom

Real-Time Water Quality Monitors



- DRBC and USGS cooperatively fund a number of water quality monitors.
- Parameters: temperature, pH, specific conductivity, dissolved oxygen and turbidity.
- Other agencies including USCOE, PWD and NOAA support additional monitors.
- **Purpose:**
  - Assessment of compliance with water quality criteria
  - Track salt front location

Other Monitoring Activities

- Special Monitoring Requests: PCBs (2001 - present) and nutrients (2011 - 2012).
- NPDES permit and Docket support - mixing zone modeling, parameters, frequency and methodology.
- Monitoring for model development and calibration - estuary and SPW models.
- Data management in support of special monitoring requests.
- PCB Pollutant Minimization Plans (PMP) - review of plans and annual reports.
- Baseline monitoring for natural gas development.

Value Added to Commission States

- Monitoring complements state-wide monitoring programs providing greater spatial and temporal coverage for basin issues.
- Monitoring data for use in Integrated Assessment Report including Section 303(d) listings.
- Tissue data for developing fish consumption advisories.
- Provide data for developing and establishing TMDLs for conventional and toxic pollutants.
- Special monitoring studies for model development and calibration provide data on intrastate tributaries - Neversink River, Lehigh River and Brodhead Creek.

Questions?

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